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| 09/877,976      | 06/08/2001  | David M. Pepper      | B-3918 617820-9     | 2143             |

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07/17/2002

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EXAMINER

PETKOVSEK, DANIEL J

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n No.

09/877,976

Applicant(s)

PEPPER, DAVID M.

Examiner

Daniel J Petkovsek

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40-43 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-12, 15-20, 23-27, 31-33, and 38 is/are rejected.
- 7) ☒ Claim(s) 4, 13, 14, 21, 22, 28-30, 34-37 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on June 8, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: Brian Healy

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 40-43 are allowed. The prior art does not teach methods of optical beam steering comprising coupling an optical beam through electro-optically active material, the output ports disposed at an increasing distance, with controllable delay via the use of an electric field/electrode with a voltage source.
2. Claims 4, 13, 14, 21, 22, 28-30, 34-37, and 39 are objected to as being dependant upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5, 6, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Thaniyavarn U.S.P. No. 5,543,805.
5. Thaniyavarn U.S.P. No. 5,543,805 teaches an optical system with a photonic device able to produce multiple optical pulse streams with controllable phased-array beam direction. Thaniyavarn 805' also teaches (Col 6, lines 25-35) how the optical

system can be combined with a variable time delay device in order to provide delayed beam-steering. The optical system is comprised of the following: an optical laser source to provide an input, controllable phased-array beam director for coupling purposes (in electro-optically active substrate), control electrodes on either side of an optical substrate with a means to control the phase shift (applying a voltage) through each waveguided optic device into a plurality of output ports, with optical ports at the end of the respective waveguides for the source to be modulated in the described high-speed, continuous beam-steering device, which clearly, fully meets applicant's claimed limitations.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-12, 15-20, 31-33, and 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Thaniyavarn U.S.P. No. 5,543,805 as applied to claim 1 above, and further in view of Dugan et al U.S.P. No. 6,157,475.

Thaniyavarn U.S.P. No. 5,543,805 discloses an optical system able to input an optical laser source that in turn couples multiple optical pulse streams with controllable phased array beam direction into an electro-optic substrate including waveguides, by using a plurality of control electrodes (with the combination of a variable time delay device). Thaniyavarn 805' does not teach the use of a plurality of tapped output couplers disposed in a linear fashion of the electro-optic material in his beam controller.

Dugan et al U.S.P. No. 6,157,475 discloses the use of a plurality of tapped output couplers in order to provide feedback and channel regulation for his optical device, the general purpose of the tapped output couplers being to regulate an optical system using information obtained as an optical signal.

Since Thaniyavarn 805' and Dugan et al 475' are both from the same field of endeavor, the purpose disclosed by Dugan et al 475' would have been recognized in the pertinent art of Thaniyavarn 805'

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the plurality of tapped output couplers of Dugan et al 475' in the optical system for controlling the phased-array beam direction of Thaniyavarn 805'. Feedback information obtained by the use of tapped output couplers in order to regulate an optical signal could be used to implement any optical system.

### *Conclusion*

8. The following is considering to be pertinent prior art:

U.S.P. No. 5,061,048 to Hayden et al with respect to electrode controlled phase shifters in electro-optic substrates.

U.S.P. No. 6,351,587 to Holland with respect to optical controlled delay lines

U.S.P. No. 5,641,954 to Keefer et al with respect to delay lines with output taps

U.S.P. No. 5,526,170 to Esman et al with respect to true-time delay modulators

*Done*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.

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July 10, 2002

A handwritten signature in black ink, appearing to read "Brian Healy", with a stylized flourish at the end.

**Brian Healy**  
**Primary Examiner**